Micro Motion® Coriolis Flowmeters Improve Performance of Boiler Water Demineralizer

RESULTS

- Improved accuracy of chemical dilutions
- Reduced chemical costs
- Minimized chemical waste
- Reduced effluent treatment
- Increased maintenance efficiency

APPLICATION

A power company in Missouri passes its boiler feed water through a demineralizer to remove impurities that can cause corrosion. The demineralizer consists of ion beds, which remove the impurities, and a regeneration system, which removes residual minerals from the ion beds. This regeneration process involves washing the beds with acid and caustic solutions. The effluents must then either be treated and released or disposed of as hazardous waste.

The company had purchased a custom-built demineralizer skid, which contained vortex meters in the dilution water infeed lines. The vortex meters controlled the feed rates to produce the desired concentrations of acid and caustic solution.

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CHALLENGE

The primary challenge is setting the acid and caustic solutions to the correct dilutions. To minimize shipping costs, the acid and caustic are purchased in strong solutions, and then they're blended on site with dilution water to obtain the desired concentrations. If the resulting concentration is too strong, costly chemicals are unnecessarily consumed. If the concentration is too weak, the ion beds have to be regenerated for a longer period, using more chemicals and producing more effluent that must be disposed of or treated.

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In order to save space on the demineralizer skids, the vortex meters were installed without sufficient upstream straight pipe runs. As a result, their measurements were highly inaccurate and unreliable, causing costly variation in solution strength.

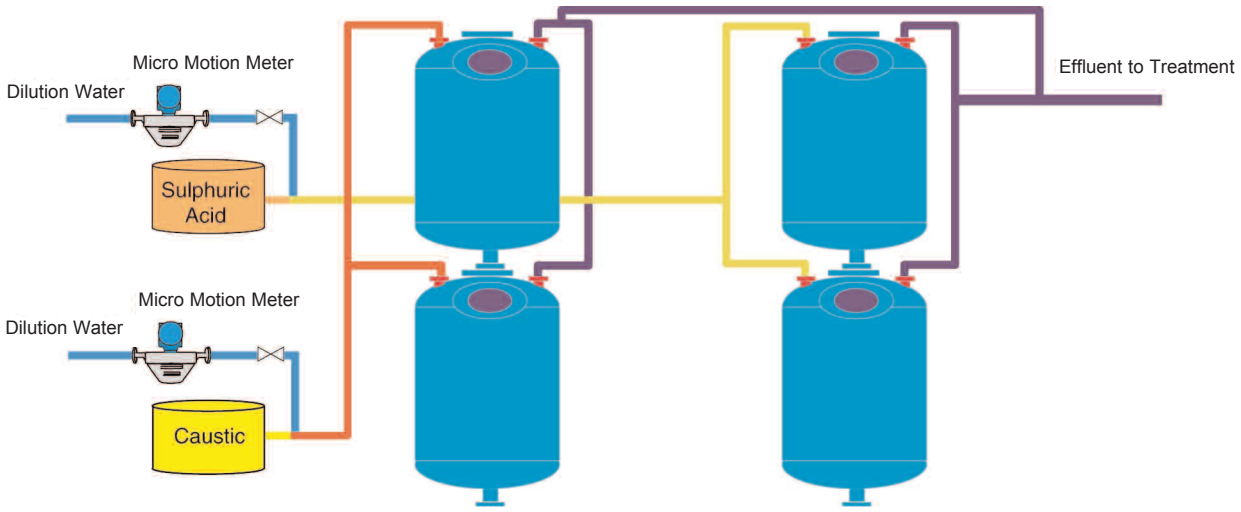
SOLUTION

Realizing that the unreliable measurement was proving to be extremely costly, the company replaced the vortex meters with Micro Motion® Coriolis flowmeters.

With drastically improved accuracy and reliability of the chemical dilutions, chemical usage was reduced significantly, resulting in lower chemical costs. The amount of effluent treatment was also reduced.

Coriolis meters do not require any flow conditioning or straight pipe runs, so the new meters were installed easily without redesigning the skid.

In addition, the power company found that its Micro Motion meters maintained their performance with little maintenance and calibration. Maintenance technicians were also impressed with the diagnostic capabilities of the flowmeters, which reduced the commissioning time of the meters. Micro Motion flowmeters helped this power company regain tighter control of its boiler water demineralizer process.



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